

DISTRACTION TECHNIQUES: TELLING STORIES TO DECREASE PAIN FOR PRESCHOOL CHILDREN DURING INFUSION

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Abstract

Hospital procedures, such as infusions, are often associated with pain. Preschool-aged children who are hospitalized for infusions will often exhibit a strong fearful response because their concept of body integrity has not fully developed. One way to reduce the fear of infusion pain is by using stories as a distraction technique. The purpose of this study was to identify differences in the scale of pain between members of an intervention group, to which the distraction technique was applied, and a control group, to which it was not applied. The study used quasi-experimental methods, with intervention and control groups. The study was conducted on 46 preschool aged respondents (3–6 years old), divided into a 34 member intervention group and a 12 member control group and ran from September to December 2017 in one of the private hospitals in the East Bekasi. The research employed a questionnaire to collect demographic data and used the Wong-Baker Faces Pain Scale to assess pain levels. The data analysis technique used was the independent t-test. The results showed there was a difference of pain response between the intervention and control groups with P value < 0.05 . Pediatric nurses are advised to use storytelling therapy as an option for providing atraumatic care intervention.

Keywords: distraction technique, infusion installation, pain, stories, preschool

Abstrak

Teknik Distraksi: Bercerita Menurunkan Nyeri Pada Anak Usia Pra Sekolah Selama Penggunaan Infus. Rasa sakit seringkali dikaitkan dengan salah satu prosedur rumah sakit yakni pemasangan infus. Reaksi anak prasekolah yang dipasang infus menunjukkan ketakutan yang luar biasa, hal itu disebabkan karena konsep integritas tubuhnya belum berkembang dengan baik. Salah satu cara untuk mengurangi ketakutan akibat nyeri pemasangan infus pada prasekolah adalah teknik distraksi bercerita. Tujuan penelitian ini untuk mengidentifikasi perbedaan skala nyeri antara kelompok intervensi dan kelompok kontrol. Penelitian ini merupakan penelitian kuantitatif dengan metode quasi eksperimen, yang menggunakan kelompok intervensi dan kelompok kontrol. Penelitian dilakukan terhadap 46 responden usia prasekolah (3-6 tahun) yang terdiri dari 34 kelompok intervensi dan 12 kelompok kontrol dari bulan September-Desember 2017 di salah satu Rumah Sakit Swasta di wilayah Bekasi Timur. Instrumen penelitian menggunakan kuisioner data demografi dan lembar observasi skala nyeri Wong Baker Faces Pain. Teknik analisis data menggunakan Uji Independent T test. Hasil penelitian menunjukkan terdapat perbedaan respon nyeri antara kelompok intervensi dan kelompok kontrol dengan nilai $p = 0,012$ (< 0.05). Perawat anak sebaiknya menggunakan metode bercerita sebagai sarana asuhan keperawatan atraumatik.

Kata kunci: cerita, nyeri, pemasangan infus, prasekolah, teknik distraksi

Introduction

People of all ages, including children, have a healthy range of pain. Hockenberry and Wilson (2016) revealed that children, with all their characteristics, have a greater chance of experiencing pain. This may be related to the fact

that their immune response systems and self-defense strengths are not yet at optimal levels.

In 2014, the morbidity rate among the 9,679,481 preschool children in Indonesia was 15.26% (Kementerian Kesehatan RI, 2015). In 2014, 35 out of 100 of those children required treat-

ment at one of the health care facilities (Badan Pusat Statistik, 2015). In 2015, the morbidity rate among the 945,955 preschool children in Jakarta was 15.05% and for the 254,004 preschool children in Bekasi that number was 14.20% (Kementerian Pemberdayaan Perempuan dan Perlindungan Anak, 2015). Identifying a means to reduce the pain response during medical procedures, such as infusions, can potentially affect thousands of preschool children.

Suryani and Syamsiatun (2016) revealed that preschoolers have several developmental tasks, which include gross motor, fine motor, language, and social skills. Preschoolers also have other characteristics, such as wanting to play, exercising in groups, exploring, asking questions, imitating and creating things. While accustomed to being away from their parents, preschoolers still need the presence of their parents when they are in an unfamiliar environment (Suryani & Syamsiatun, 2016). Getting sick and undergoing treatment at the hospital (hospitalization process) definitely presents an unfamiliar situation for preschoolers.

Wong (2013) revealed that preschoolers display reactions, such as protest, despair, and regression, when hospitalized. These reactions may manifest as inactivity, sadness, disinterest in the environment and being uncommunicative. Preschoolers who are hospitalized will often experience psychosocial conflicts as a result of painful experiences, such as infusions, blood sampling for laboratory tests, and other actions. Infusion is a process that can cause anxiety, fear, and discomfort due to the pain felt during the process. A child will react to the stabbing action of the needle, and maybe even react to the needle itself because it causes real pain (Wong, 2013). The reactions of preschoolers tend to be more understandable than the responses of younger children because they can point to where their pain is and can use a pain scale appropriately (Hockenberry & Wilson, 2016).

The distraction technique is a method that used to minimize pain, other than using drugs. Hockenberry and Wilson (2016) claim that the distraction technique is an atraumatic care action because it can reduce physical and psychological stress. Storytelling is an example of a distraction technique that can be used for children. It is effective because storytelling can reduce physiological pain, stress, and anxiety by diverting attention from the pain, and these benefits are realized in a short amount of time. The storytelling distraction technique can be used with pediatric patients who are undergoing invasive measures, such as infusion and blood sampling. The goal is to reduce pain, so that the child is calmer and more cooperative, for the duration of the procedure (Soetjiningsih & Ranuh, 2014).

When children listen to a story, they are figuratively transported from the real world to an imaginary world. To be effective, stories told by a narrator must have certain characteristics. Stories that are interesting are about themselves and their listeners, therefore stories for children need to combine factors, such as the ability to see reality and to think freely, and should include healthy doses of imagination, humor, and entertainment so that children do not get tired of hearing them (Yaakub & Jamil, 2008).

Generally, most children who are hospitalized, including preschoolers, will be infused. These children display various reactions to having infusions and this may occur because they feel pain in response to being stabbed by a needle. Based on observations in the childcare room, there was only one nurse who used the distraction technique of telling stories during infusion. In addition, there were no media, such as colorful storybooks and hand puppets, that was available that could have been used to support the storytelling distraction technique, and which was suitable for preschoolers.

Based on these observations, the researcher was interested in exploring the "Effectiveness

of Distraction Technique: Using Storytelling to Reduce the Pain Response of Preschool Children when Installing Infusions in Hospital Child Care in Bekasi.” The purpose of this study was to identify how effective the practice of storytelling can be used as a distraction technique for helping preschool children reduce their response to pain experienced during infusions.

Method

The research was conducted from September to December 2017, at a private hospital in the East Bekasi area, using a quantitative study, with quasi-experimental methods. Children participating in the study were divided into an intervention group, which received the storytelling intervention, and a control group, which did not. The results of both groups were then compared by post-test (Polit and Beck, 2012). The population was drawn from preschoolers, aged 3–6 years old, at the childcare room in the hospital in East Bekasi, in 2016, where the total population is approximately 150 people/month. The use of purposive sampling allowed the researcher to select the sample based on characteristics of the population that had been known before (Notoatmojo, 2012). Criteria for inclusion in this study were: complete data, Compos Mentis awareness, children who would receive infusions in a childcare room, and normal child development (no cognitive or developmental delays). Criteria for exclusion were: incomplete data, and children and parents who refused to receive the story distraction technique.

Data analysis was performed using the Thabane formula. A preliminary study was conducted during the third and fourth weeks of August 2017, to identify standard deviations from 30 respondents. The result showed a standard deviation of 8.6, which was used to calculate the number of samples needed for the research. The result of the calculation is:

$$n = \frac{[1.96 + 0.86]^2 \times 2 \times 08.6^2}{5.0^2} = 46.30$$

The number was rounded down to 46 samples, of which 75% would be in the intervention group, while 25% would be assigned to the control group. Polit and Hungler (1999) argue this unequal allocation has obvious advantages from an ethical point of view. When the subject are not equally divided among treatment groups, the total number of subjects needed is greater to achieve the same level of power in performing statistical test.

After conducting a preliminary study and obtaining the appropriate number of respondents, the author also conducted a research experiment, as an exercise in providing storytelling as a distraction technique to children from 3 to 6 years old. After consulting with Gerry Puraatmadja, a professional storyteller, on methods for using storytelling as a distraction technique, the researcher conducted an initial experiment on a test sample consisting of 20 children, aged 3–6 years old, who were having infusions. This research experiment was conducted on the first and second weeks of September 2017. After completing preliminary studies and research, the researcher carried out the experiment from the 3rd week of September until the end of December 2017. The data collected included questionnaires containing demographic data for all respondents, as well as documents detailing the level of pain observed, based on the Wong-Baker Faces Pain Scale and obtained with informed consent.

Results

Respondent characteristics were divided by gender, age and infusion experience. Gender characteristics in both groups, the number of female children exceeded the number of male children, with 52.9% of the children in the intervention group and 66.7% of the children in the control group being female (Table 1). Most of the respondents in the intervention group were 6 years old, representing 11 respondents (32.4%). Most of the respondents in the control group were 5 years old, representing 5 respondents (41.7%) (Table 2).

Table 1. Distribution of Respondents, by Gender

Gender	Intervention		Control	
	N	%	N	%
Male	16	47.1	4	33.3
Female	18	52.9	8	66.7

Table 2. Distribution of Respondents, by Age

Age	Intervention		Control	
	N	%	N	%
3 years old	7	20.6	2	16.7
4 years old	8	23.5	5	41.7
5 years old	8	23.5	2	16.7
6 years old	11	32.4	3	25.0

Table 3. Distribution Respondents, by Previous Infusion Experience

Experience	Intervention		Control	
	N	%	N	%
Experiences	14	41.2	2	16.7
Not Experiences	20	58.8	10	83.3

Table 4. Pain Response by Intervention and Control Groups

Pain Response	Intervention		Control	
	n	%	n	%
A little pain	6	17.6	0	0
A little disturbing pain	13	38.2	2	16.7
Pain disrupting activities	6	17.6	3	25.0
A very disturbing pain	6	17.6	4	33.3
Hard pain	3	8.8	3	25.0

Table 5. Distribution of Normality Test Results

Variable	Group	N	p
Response Pain	Intervention	34	0.099
	Control	12	0.693

Table 6. Differences in Respondents' Pain Response, using Independent T-Test

Variable	Group	N	Levene's Test	Mean	SD	p	T Score	T Table (df= 44)
Response Pain	Intervention	34	0.327	5.06	2.719	0.012	2.618	2.01537
	Control	12		7.33	2.146			

Terms of previous infusion experience, most of the respondents in the intervention group (58.8% or 20 respondents) did not have previous infusion experience as did a majority of the respondents (83.3% or 10 respondents) in control group (Table 3). Table 4 shows that a Majority of the respondents in the intervention group, as many as 13 respondents, or 38.2% of the total, felt "a little disturbing pain" during infusion while the majority of respondents in control group, as many as 4 respondents, or 33.3% of the total, felt "very disturbing pain" (Table 4).

The results of the Normality Test in the intervention group shows the p value is 0.099 (> 0.05) and in a control group that value is 0.693 (> 0.05) (Table 5). A p value > 0.05 in the Normality Test indicates that the data has been normally distributed in both groups, which declares the data as feasible to be analyzed by the Independent T-test.

For the intervention group, which had a sample of 34 respondents ($n= 34$), the average respondent had a pain response range with mean of 5.06 (St. Deviation= 2.719). In the control group, which had a sample of 12 respondents ($n= 12$), the average respondent indicated a pain response range with a mean of 7.33 (St. Deviation= 2.416). The results of data analysis using Independent T-Test are p-value= 0.012 $< \alpha$ (0.05) and T-score 2.618 $> T$ table ($df= 44$) 2.0157 which states that H_0 is rejected (Table 6).

Discussions

Respondent characteristics were divided by gender, age and infusion experience. The results of this study were similar to the results of previous research conducted by Winhayu (2013), which found that 53.3% of the respondents of preschool-aged children were female, while in Sembiring's study (2015) 76.9% were male. The results of this study are in accordance with the theory that gender is one of the factors that influence pain. Perry and

Potter (2016) revealed that, generally, men and women did not differ significantly in their responses to pain.

Purwati (2010) also concluded that there was no influence between gender and the level of pain reported by preschoolers who were infused. The other study findings that females reported more pain than males at the outset of the first exposure to pain, but then experienced less pain and annoyance than males as a painful stimulus was sustained and with repeated stimulation (Hashmi & Davis, 2009). Gender can affect a person's response to pain, believing that females are more sensitive to feelings of pain and less able to withstand pain, those findings do not take into account the influence of other factors, such as the individual's culture, age, and previous pain experience.

Distribution of respondents ages characteristics, most of the respondents in the intervention group was 6 years old, representing 11 respondents (32.4%). Most of the respondents in the control group were 5 years old, representing 5 respondents (41.7%). Perry and Potter (2016) stated that age is one of the factors that influence pain response. The developmental differences between children and adults can affect how they respond to pain.

Children tend to have difficulty in understanding pain and assume that it is the result of a nurse's action. They also did not have an extensive vocabulary, so they had difficulty describing the sensation of pain to parents and nurses. According to researchers, age is very influential in a person's pain response; children are less able to withstand pain than adults. Fear and anxiety can also aggravate the level of pain that they feel. This is also supported by Sembiring's research (2015), which found that the pain response of toddlers was higher than that of preschool-aged children during invasive procedures.

The other respondent characteristic showed that, in terms of previous infusion experience,

most of the respondents in the intervention group (58.8% or 20 respondents) did not have previous infusion experience as did a majority of the respondents (83.3% or 10 respondents) in control group. This means that the majority of respondents did not have previous experience with pain sensation during infusions. According to the International Association for Study of Pain (IASP), pain is an unpleasant emotional experience.

Perry and Potter revealed that each person learns from the experience of pain, however, past experiences with pain do not mean that the person will receive pain easily in the future. If an individual has never felt pain, then the first perception of pain can interfere with coping mechanisms. This aligns with the results of Purwati's research (2010), which showed that there was no significant effect between previous infusion experience and the level of pain of preschoolers who were infused ($p=0.564$).

The result of pain response by intervention and control groups similar with the results of Purwati's research (2010) on "Decreasing the Pain Response of Preschool-Aged Children during Installation of Intravenous Infusions Through Music Therapy" show that most children in the intervention groups treated with music experienced a pain response of "a little pain" while 50% of the children in the control group reported experiencing that "pain is felt" to the point of crying.

Hockenberry and Wilson (2016) revealed that there is a different pain response between preschoolers and toddlers. For example, preschoolers can respond better than younger children to preparatory interventions in terms of explanation and distraction. Toddler-aged children tend to respond more through physical and verbal aggression to avoid receiving pain more specific and leads to goals. Preschoolers can more easily show the location of their pain and can use a pain scale more appropriately than children who are younger than them.

This statement is in accordance with this researcher's analysis of the data collected. Respondents were more aggressive in responding pain and could show pain more specifically. Most of the respondents in the intervention were also more cooperative and able to follow the storyline given so that the aim of the researchers to distract them from pain with the storytelling technique was achieved. This achievement can be seen in Table 2, which shows that the intervention group had a lower pain scale than the control group.

The result of relationship analysis about differences in respondents' pain response, using Independent T-Test indicates that the difference in pain response between preschoolers who received the distraction technique during infusion and those who did not have a 95% confidence level. The minus symbols (-) on the T-count indicates that the intervention group had a lower pain response than the control group.

Wong (2013) revealed that hospitalization for children occurs due to separation, loss of control, body injury and pain. If pain is not overcome, the child tends to become uncooperative, which can slow down the healing process. The storytelling technique is one example of a pain distraction techniques that can be applied to children. Many previous studies have proven that storytelling can reduce the painful effects of hospitalization for children.

Other studies support the findings of this research. For example, Winahyu, Alfiyanti, and Solekhan (2013) found that there was a therapeutic pain effect of telling stories in preschoolers during blood sampling. Dianita, Aini, and Suswanti (2014) noted the effect of audiovisual storytelling on the anxiety of preschool-aged children and found that storytelling therapy can reduce anxiety in children with p -value of 0.000. In addition to having a story read aloud, storytelling can also be done using audiovisual techniques, like watching cartoons.

During the study, the researcher observed the children's responses to the story. For children in the intervention group, the researcher found that respondents could follow the storyline well and were distracted by the atmosphere in the story. Muttaqien (2008) revealed that the distraction technique can activate the limbic system in the frontal part of the brain to inhibit the transmission of pain impulses from the thalamus to the cortical structure. No adverse effects were reported by the patient and almost all patients said their moods were calmer and more relaxed and they had better sleep quality at night. This statement is in accordance with the results of this research where members of the intervention group were not focused on pain caused by the infusion, resulting in them experiencing lower levels of pain than members of the control group.

Conclusions

Based on the results of this study, there is a difference in the level of pain response reported by preschoolers during infusion between groups given the storytelling distraction technique and the control group ($p=0.012$). In light of these results, pediatric nurses are advised to use storytelling therapy as an option for providing atraumatic care intervention, especially as a means of distracting the pain response experienced by children during invasive procedures. In addition, further research is recommended to provide a deeper analysis of the physical and psychological reactions of children who are experiencing pain to uncover other factors that may influence and be used to mitigate that pain (PJ, HP, INR).

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